

REMARKS

Applicants respectfully request reconsideration of the above-identified application in view of the amendment above and the remarks below.

No claims have been canceled or added in this paper. Claim 10 has been amended in this paper. Therefore, claims 6-7 and 10 are pending and are under active consideration.

Claims 6 and 10 stand rejected under 35 U.S.C. 103(a) “as being unpatentable over Hayka et al (US 5,688,118) in view of Vardimon et al. (US 5,752,832).” In support of the rejection, the Patent Office states the following:

Regarding claim 6, Hayka discloses a simulation system for dentistry wherein forces can be exerted on a tooth secured in a model of a jaw using a tool in order to examine or work on the tooth (See Col. 6, 33-39). Hayka further discloses a single sensor measuring device fixed underneath the model of the jaw (See Col. 11, 24-37) constructed as six-component force-moment sensor (See Col. 9, 16-56), Wherein the components of force (the resistance of the region that is being drilled) is transferred to the processing unit (e.g. display unit 68). The data processor further comprises a memory (See Fig. 4 and Col. 10, 9-59). Hayka does not explicitly disclose that the forces are converted into electrical measuring signals. However, Hayka discloses that both mechanical and electrical sensors can be used to simulate the region of a tooth being drilled. Hayka does not specifically disclose a plurality of reference-force-time curves of different dental treatment steps. However Vardimon discloses a method for measuring tooth tightening, wherein the force applied to the teeth is measured as a function of time in order to determine the tightness between the teeth for orthodontic purposes. Vardimon further discloses measuring and processing the exerted force via a processing unit (See Abstract and Col. 3, 43-54 and figures 3 and 4). Therefore it would have been obvious to one of ordinary skill in the art to modify Hayka’s invention to include the well-known method of measuring force as a function of time as disclosed by Vardimon in order to accommodate user with an accurate performance feedback in dentistry training.

Later in the Office Action, the Patent Office states the following:

Applicant argues that the device developed by the prior art of record, Hayka, is very different from that developed by the present inventors. Applicant further argues that Hayka uses a dental hand-piece in order to carry out the steps disclosed in the invention, whereas the claimed invention discloses an examination procedure that is carried out without using instrument. Examiner respectfully disagrees. Examiner notes that claim 1 specifically discloses using a tool or hand in order to examine the tooth. Examiner further notes that the claims in the instant application are apparatus claims and regardless of how the steps of the instant application are carried out, Hayka discloses the same components as disclosed in the claimed invention. Furthermore, the hand piece of Hayka's invention is a substitute for the various apparatuses that a dentist uses in performing treatment procedure. The same hand piece is also disclosed in figure 1 of Reiner's invention. The fact that a hand-piece is used in Hayka to perform the procedure does not exclude the possibility of examining the tooth by hand. Applicant further disclosed that the secondary reference uses the force-time curves for a different purpose. Examiner notes that the graphing the exerted force as a function of time is well-known in the art as correctly pointed out by the applicant and although the force-time curves in Vardimon are for a different purpose than that in the claimed invention, examiner has cited the secondary reference, Vardimon, to further emphasize that the method is in fact well-known.

Applicants respectfully traverse the subject rejection.

As noted in previous responses, the present invention is directed at a dentistry learning and training device in which a user practices performing a dental treatment technique on a model either using a tool or by hand. The purpose of the present device is to enable the user to obtain feedback as to how he performed the dental treatment technique, as compared to certain standards. In accordance with the teachings of the present invention, such feedback is provided by measuring the forces, over time, applied to the model by the user so as to obtain a force-time curve, comparing the measured force-time curve to a reference force-time curve, and then displaying the compared force-time curves.

Hayka et al. is directed at an entirely different type of device than the claimed device. More specifically, whereas the claimed device is constructed to evaluate and to provide **feedback** as to how a user is performing a particular dental treatment technique, the device of Hayka et al. neither evaluates nor provides any such feedback. This is because, instead, the device of Hayka et al. is designed to provide a user with a **simulation** of a dental treatment technique. In other words, the Hayka device is designed so that, when a user grasps the tool and brings it into contact with the model, the tool is caused to operate by the simulator, **not by the user**, according to a predetermined program. In this manner, the device of Hayka et al. enables a user to experience how the tool is supposed to feel at various stages during a dental treatment technique. In other words, a user has no control over how the Hayka tool is operated since the tool operates according to its own predetermined program.

Alternatively stated, Hayka et al. is akin to a novice tennis player learning how to swing a tennis racket by having an instructor take the student's arm and swing the student's arm along a desired trajectory. Having the instructor guide the student's arm enables the student to gain a sense of how a correct swing should feel. By contrast, it does not provide the student with an evaluation or feedback of how a swing by the student that is unaided by the instructor would compare to an ideal swing.

Therefore, because the device of Hayka et al. is not evaluating the force applied by the student to the model or providing any comparison of this force to any standards, Hayka et al. does not teach or suggest measuring the forces applied by the student to the model nor does it teach or suggest comparing such forces to standards or displaying such a comparison to the student.

The above deficiencies of Hayka et al. are not cured by Vardimon et al.

Vardimon et al. discloses a method and an apparatus for measuring tooth tightness, wherein the force applied to the teeth is measured as a function of time in order to determine the tightness between the teeth for orthodontic purposes. However, Vardimon et al. neither teaches nor suggests comparing the measured tooth tightness signals to standard signals nor does Vardimon et al. teach or suggest displaying these comparisons. Moreover, even if Vardimon et al. did teach comparing the measured tooth tightness signals to standard signals and displaying these comparisons, there still would have been no reason to combine the teachings of Hayka et al. and Vardimon et al. since, as explained above, the forces applied by the Hayka et al. tool to the model are already known as they are designed to follow a predetermined program. Consequently, there would have been no reason to measure, compare and display the forces of the Hayka et al. tool since such forces are predetermined to follow the standard.

Accordingly, for at least the above reasons, the subject rejection should be withdrawn.

Claim 7 stands rejected under 35 U.S.C. 103(a) “as being unpatentable over Hayka et al. (US 5,688,118) in view of Vardimon et al. (US 5,752,832) and further in view of Azerad et al. (US 2004/0091845).” In support of the rejection, the Patent Office states the following:

Regarding claim 7, Hayka/Hennion do not specifically disclose generating acoustic signals corresponding to a specific force/time. Azerad discloses acoustic signal patterns stored in correlation with the measured force/time course are retrieved and displayed by an acoustic display unit, wherein the multitude of sound samples are stored in the data memory in which case by means of a program subject to the actual force/time course of the simulated tooth treatment a sound sample belonging to it can be displayed (See P. 4, [0073]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Hayka/Vardimon’s invention to incorporate the features of Azerad’s invention in order to create a more realistic environment for training the users.

Applicants respectfully traverse the subject rejection. Claim 7 depends from claim 6. Claim 6 is patentable over Hayka et al. in view of Vardimon et al. for at least the reasons given above. Azerad et al. fails to cure all of the deficiencies of Hayka et al. and Vardimon et al. with respect to claim 6. (Applicants incorporate herein by reference their comments regarding Azerad et al. from previous responses.) Therefore, based at least on its dependency from claim 6, claim 7 is patentable over the instant combination of Hayka et al., Vardimon et al., and Azerad et al.

Accordingly, for at least the above reasons, the subject rejection should be withdrawn.


In conclusion, it is respectfully submitted that the present application is now in condition for allowance. Prompt and favorable action is earnestly solicited.

If there are any fees due in connection with the filing of this paper that are not accounted for, the Examiner is authorized to charge the fees to our Deposit Account No. 11-1755. If a fee is

required for an extension of time under 37 C.F.R. 1.136 that is not accounted for already, such an extension of time is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 11-8-10.


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